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KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004

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LIANG, REGINA	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/632,348
Filing Date: July 31, 2003
Appellant(s): YOUNG, SARAH

Clifford A. Ulrich
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3/27/09 appealing from the Office action mailed 6/2/08.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,373,472	Palalau et al	04-2002
20040017362	Mulligan et al	01-2004
WO 0227645 (with English	Franzen	04-2002

translation)

Wingert et al, "Hyper-Redundant Robot Manipulators Actuated by Optimized Binary Dielectric Polymers", 2002.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1, 6-13, 15-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franzen (WO 02/27645 with English translation) and Wingert et al ("Hyper-Redundant Robot Manipulators Actuated by Optimized Binary Dielectric Polymers", hereinafter Wingert) in view of Palalau (US PAT. NO. 6,373,472).

As to claims 1, 20-22, Fig. 1 of Franzen discloses a touch-sensitive display with tactile feedback, comprising a display (electronic paper S2); and an actuator layer (transparent flexible sensor mat S1) arranged on an outwardly facing side of the display and including an operating surface geometry deformable as a function of a control signal generated by at least one of a computation device (control unit µp, see the abstract and page 10, line 14 to page 11, line 6 of the English translation).

Franzen does not disclose the actuator including a material having a reversibly and controllably changeable volume. However, it is well known in the art that actuator including a material having a reversibly and controllably changeable volume (see Wingert's dielectric polymer actuator) so as to "achieve improved performance by incorporating an elastic passive

element to maintain uniform force-displacement characteristic and bi-stable action" (lines 6-9 in ABSTRACT of Wingert). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the actuator of Franzen to have the material as taught by Wingert so as to "achieve improved performance by incorporating an elastic passive element to maintain uniform force-displacement characteristic and bi-stable action" (lines 6-9 in ABSTRACT of Wingert).

Franzen as modified by Wingert does not disclose the display is configured to display information relevant to operation of a motor vehicle. However, it is well known in the art that touch-sensitive display is widely used in different environments such as in motor vehicles to provide user friendly input interface which can be customized and personalize for the driver (e.g. Palalau col. 2 lines 5-13). For example, Figs. 1, 2, 9 of Palalau disclose a display device in a steering wheel of a motor vehicle, comprising a touch screen display (28, 32, 36) configured to display information relevant to operation of a motor vehicle. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the touch-sensitive display of Franzen as modified by Wingert to be used in the motor vehicle for providing information relevant to operation of the motor vehicle as taught by Palalau since this "provides a "hands-on", "eyes-front" driver control interface system which minimizes the time and distance that the driver's attention is diverted from the road and the time and distance that the driver's hands are diverted from the steering wheel while operating various systems in the vehicle" via a customized and personalized user interface (col. 1, lines 24-40 of Palalau).

As to claim 6, Franzen teaches the actuator layer is transparent (transparent flexible sensor mat S1, page 8, lines 15-16 of the English translation).

As to claims 7 and 8, Franzen teaches the control signal includes an optical signal or light (see page 11, lines 9-20 of the English translation).

As to claims 9, 10. Franzen teaches the control signal includes an electrical field or an electromagnetic field (page 7, lines 14-22 of the English translation).

As to claim 11, Franzen teaches the actuator layer is statically deformable at least for duration of the control signal.

As to claims 12, 13, Franzen teaches the display is configured to receive entry of user input or an area of the actuator layer is configured to receive the entry of the user input (virtual keypad).

As to claim 15, Franzen teaches the actuator layer is controllable by haptic feedback (tactile feedback).

As to claim 16, Franzen teaches the sensor mat detecting a touch or a press at a point of the first layer and the control unit generates the control signal to deform the actuator, it is inherent that the actuator is deformable by pressure with a force that exceeds a limiting value otherwise the sensor mat can not detect a touch or a press caused by the user.

As to claims 17 and18, Franzen teaches a computation device (control unit μp) configured to deform the actuator layer in accordance with the control signal at a point of contact of the actuator layer touched by the user or at the point of contact only in response to an input via the display by the user by touch at the point of contact.

As to claim 19, Franzen teaches the actuator layer is configured to produce an operating element.

As to claim 23, Franzen teaches the operating surface (sensor mat layer S1) geometry is deformable in response to the control signal.

As to claim 24, Franzen teaches a computation device (control unit µp) configured to generate the control signal, the operative surface geometry deformable in response to the control signal generated by the computation device.

As to claim 25, Franzen teaches the operating surface geometry is deformable is response to an electronic control signal.

2. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franzen, Wingert and Palalau applied to claim 1 above, and further in view of Mulligan (US 2004/0017362).

Franzen as modified by Wingert and Palalau does not disclose the actuator layer includes a sol-gel. However, Mulligan teaches touch sensor device comprising a sol-gel ([0029]). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the actuator layer of Franzen as modified by Wingert and Palalau to include a sol-gel as taught by Mulligan so as to protect the sensor bars of the touch sensor from damage due to a touch.

(10) Response to Argument

Appellant's remarks regarding Wingert (page 4 of the Brief) "that is no indication whatsoever that either of the elastomeric film and the electrode coating is transparent. Absent transparency, the proposed modification would **render the device of Franzen unfit for its intended purpose**, as the display layer S2 would not be visible through the layer S1" are not

persuasive. As disclosed by the appellant (amendment filed 10/22/07), the newly added limitation "an actuator layer arranged on the display and including (a) a material having a reversibly and controllably changeable volume" was supported by the specification on pages 6, lines 21-33. As disclosed in the specification on page 6, lines 21-33, appellant was using the material as taught by Wingert to be the actuator layer, although the material is not transparent, the material is used by the appellant when its transparency or transmissivity is more than approximately 75%. Clearly, if appellant is using the material as taught by Wingert in his invention so that the display would be visible through the actuator, the material as taught by Wingert can be also modified into Franzen's actuator layer, thus, in the combination of Franzen and Wingert the display layer S2 would be visible through the layer S1 since Franzen teaches the actuator layer S1 is transparent and Wingert teaches the material of the actuator having transparency or transmissivity more than approximately 75% and having a reversibly and controllably changeable volume.

Appellant's remarks (page 4-6 of the Brief) that "there is no indication whatsoever that forming the sensor layer of the materials and structure disclosed by Wingert et al. would allow touch detection", "the proposed modification would **change the principle of operation** of the references, and is therefore an insufficient basis for a prima facie case of obviousness" and "that the "actuator" of Franzen would appear to be the piezoelectrically actuated knob matrix if the third layer S3 – **not** the transparent sensor layer S1" are not persuasive. Claim 1 broadly recites "an actuator layer arranged on an outwardly facing side of the display and including (a) a material having a reversibly and controllably changeable volume and (b) operating surface geometry deformable as a function of a control signal generated by at lease one of (a) a

computation device and (b) a logic circuit". The sensor layer S1 of Franzen reads on "an actuator" as claimed. The sensor layer S1 of Franzen is arranged on top of the display layer S2, the sole figure of Franzen shows the layer S1 is geometry deformed when the operated knobs N1... Nm are movably vertically with respect to the layers S1 and S2 to provide a tactile feedback to user when the user touches the sensor layer S1. The sensor layer S1 performs the function such as keys for actuation by the user while the movable pins are for providing tactile feedback to the user, see English translation on pages 5-7. Hence contrary to appellant's remarks, the layer S1 is an actuator as claimed and not the movable pins as alleged by appellant. The layer S3 and the control unit μp of Franzen are corresponding to the logic circuit and the computation device as claimed. Thus, the sensor layer S1 of Franzen reads on "an actuator arranged on an outwardly facing side of the display and including an operating surface geometry deformable as a function of a control signal generated by at least one of a computation device and a logic circuit" as claimed in independent claims 1, 20-22. Therefore, the Final office action has established a prima facie case of obviousness.

Palalau is used to teach a display device in a steering wheel of a motor vehicle, comprising a touch screen display (28, 32, 36) configured to display information relevant to operation of a motor vehicle (Figs. 1, 2 and 9). Thus, the combination of Franzen, Wingert and Palalau would have the limitation as claimed.

Appellant's argument regarding claim 14 are not persuasive, see the rejection above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Regina Liang/

Primary Examiner, Art Unit 2629

Conferees:

1] /Amare Mengistu/

Supervisory Patent Examiner, Art Unit 2629